There is no ambiguity in his statement as to the choking up of the Kensington Estate with private houses and mansions. The sites to be occupied by private houses are bounded on the north by the Albert Hall and the adjoining semicircular arcades or quadrants, on the east and west by portions of the galleries containing the Museum of Science and the India Museum, and on the south by the Imperial Institute. They form the gardens and terraces so well known to the public who flocked to the evening *al fresco* entertainments which were given in connection with the series of International Exhibitions recently held at South Kensington. The various public announcements issued by Her Majesty's Commissioners during the last thirty-five years conclusively show that this land was acquired for more useful and comprehensive purposes than those of speculative house builders.

Let us briefly refer to those announcements. On the close of the Exhibition of 1851, H.M. Commissioners found themselves the possessors of some £200,000. They were impressed with the fact that many public institutions founded to promote science and art had been "subject to the disadvantages of being placed in such a situation from the crowding of surrounding houses that they were without light or air, and had no convenient access." They therefore determined to purchase a large estate of unoccupied land, and in 1852 became the landlords of what has since been commonly known as the South Kensington Estate. For the ultimate use of this large property they proposed to trust to the "voluntary efforts of individuals, corporations, and authorities, to carry out the promotion of the different interests with which they are themselves connected." In their Report for 1856, the Commissioners, alluding to "the question of the site that has been purchased by us," show that, during the intervening years, "the great natural capabilities of the site have been properly developed by means of the construction of important lines of communication and other improvements; and that we are still occupied in taking the remaining steps requisite for perfecting the estate, and rendering it in all respects fit for the great national objects to which it is to be applied." Very shortly afterwards a large area of the Estate was leased to the Royal Horticultural Society. This was laid out as an ornamental garden surrounded by arcades and galleries. The late Prince Consort opened this garden in 1861. His Royal Highness made a speech on the occasion, in the course of which he said, "We may hope that at no distant day this garden will form the inner court of a vast quadrangle of Public Buildings rendered easily accessible by the broad roads which will surround them, Buildings where Science and Art may find space for development, with that light and air which are well-nigh banished from this overgrown metropolis." This was but six months before the death of the Prince. For some years the Prince Consort's superior policy in dealing with the Estate was respected and followed by Her Majesty's Commissioners. The Natural History Museum arose on the land at the south of the Horticultural Gardens. Galleries were built above and at the side of the long eastern and western arcades of the gardens; other galleries were erected between these gardens and the Natural History Museum. The Government secured a tenure of all these galleries as a temporary home in which the Government has placed the National Science Museum, the Collections of Historic Machinery, the India Museum, and the Collections of Modern Industrial Art. On the far north of the Estate was built the Royal Albert Hall: then followed the Royal College of Music. Later still sprang up the Technological Schools of the City and Guilds of London Institute. But with all this steady realization of the Prince Consort's far-seeing policy the Commissioners were not satisfied. Pleading necessity to find money for defraying the expenses of certain not over-wise experiments undertaken by them, they began to let land on the margins of their Estate for the erection of private dwellings. And the more prominent result of this is the beetling mass of mansions opposite Hyde Park, overshadowing the Albert Hall on one side, and frowning ominously upon the "inner court of the vast quadrangle" of the Estate. Then came the movement for an Imperial Institute. A great slice out of the "inner court" was allocated for this mysterious Institute, which is rapidly asserting its architectural entity. At this point in the development of the Estate, the Commissioners, it would seem, succumbed to the hopeless temptation of washing their hands of further trouble. And, as we have already stated, their present intention is to block up the remaining portion of the "inner court" with private houses and mansions, and thus disencumber themselves of any responsibility for institutions for science and art.

Now, an explanation, which has been offered, of this *volte face* on the part of the Commissioners is this. The subscriptions for the Imperial Institute are insufficient for its endowment. It must be remembered that the Imperial Institute is the outcome of the "Jubilee" loyalty. The possible utility of this Institute has been debated without success. To lay the foundation-stone, and to pay for a staff of subscription-touters and what not, during two years, have exhausted some £25,000 of its capital, which does not reach £300,000. The ingenuity of Lord Thring and Sir Lyon Playfair has, it is said, been accordingly taxed. Their united wits are credited with having proposed the sale to private house builders of the unallotted land as well as of portions of land already occupied by galleries containing the Science Museum and India Museum. The money thus realized, or most of it, is to go into the coffers of the Imperial Institute. Such are the statements made. If they are wrong, they should be contradicted.

Another minor incident which further exemplifies the Commissioners' attitude is the projected removal of the monument raised twenty-five years ago on their estate to commemorate the Exhibition of 1851. This monument is surmounted by a statue of H.R.H. the late Prince Consort. This too is to be swept away to make room for private houses.

WARREN DE LA RUE.

A PROMINENT and representative figure has just disappeared from scientific circles, whose absence will be deeply felt by the many eminent men with whom, for a long time, he had been associated. In the

Councils of our great Societies he was a man invaluable for his intelligence, for his persevering energy, for his promptness of resource, and for a generosity, princely, but discriminating. These words will at once suggest the regretted decease of Warren de la Rue. At the age of seventy-four, he can hardly be said to have died full of years; but assuredly Warren de la Rue died full of honours. He was almost, but happily not quite, the last of a generation or two, of men who, possessing ample pecuniary means in middle or early life, devoted the means and the life to the search for truth in Nature, each in his own line. The two Herschels, Wollaston, Babbage, Gassiot, Spottiswoode, and De la Rue are gone, and but few like to them still survive, linking us with the past. "The old order changeth;" and now the endowed and professional student of Nature is fast displacing the amateur. Nor need we altogether deplore it; for, after all, the Professor and the amateur belong to the same race of Englishmen; they have the same love of the quest for truth ardent within them; and in the case of the Professor there is now superadded the spur that comes from a sense of duty.

Warren de la Rue was born in 1815, and was the son of Mr. Thomas de la Rue, the founder of that eminent firm of manufacturing stationers in Bunhill Row who have rendered well-known services to social life by the production of numerous articles, unsurpassed in excellence in their particular craft. He first became known to the world at large by his newly-invented machine for the manufacture of envelopes, which was placed in the Great Exhibition of 1851, and formed one of the chief objects of attraction there. Not far from it lay a small photograph of the moon, taken by Bond with the Harvard refractor of 15 inches. It was comparatively, and from the circumstances of the times necessarily, but a poor performance, yet it held out the promise of future possibilities, and it certainly fired the hopes of De la Rue. It was to him what the itinerant telescope in the streets of Bath became to the elder Herschel, viz. the determining point of a future and illustrious career. Accordingly, we soon find him engaged in the construction of, what in the sequel has become, his historic reflecting telescope, having an aperture of 13 inches and a focal length of 10 feet. The mirror was figured and polished by his own hands, and the equatorial mounting of the telescope was completed in his manufactory at Bunhill Row, from his own designs. Here again our thoughts revert to the elder Herschel; but that great astronomer never approached the perfection either of the De la Rue mirror, or of the mechanism by which it was mounted and by which it was moved. It is, however, only just to say that much of this notable improvement was the natural outcome of the lapse of time and of the progress that had been made in the working of metal. The instrument was mounted in the suburbs of London, at Canonbury, in a small garden surrounded by houses. It was hither, when the day's work was done at Bunhill Row, that De la Rue retired at night; and here, by patiently waiting for a clear and serene atmosphere, an event of rare occurrence, and then only during the small hours of the morning, he finally succeeded in taking telescopic pictures of the planets Jupiter and Saturn, which it may not be too much to say remain still the equals of any subsequent delineations of the same planets. Of the Saturn picture, John Herschel was heard to say that he could die content if he could but once see the planet itself as beautifully defined. This great success at once placed him among the chief amateur practical astronomers of the day.

It was about this time that he associated himself with Owen, Quekett, Bowerbank, and others, in the formation of the Microscopical Society; and such were the keenness and exactness of his eyes and hand, that he soon became a chief referee for the performance of the wonderful microscopic objectives which then for the first time were produced by the skill of Powell and Andrew Ross.

His first essays in lunar photography were not so successful as he had anticipated: the collodion plates were deficient in rapidity, and his telescope, not being as yet provided with a clock movement, he was unable to keep the moon motionless in the field, even for the short exposure requisite to secure a photographic image. All this, however, was soon rectified. For, about the year 1857, he removed his residence and his telescope from Canonbury to Cranford, a village distant from London by some twelve miles west. There he provided his instrument with an admirable driving-clock, and applied what leisure he could get, sedulously to celestial photography; and there he secured the earliest substantial results of a method, which, at present, bids fair to revolutionize the processes of the most exact and refined astronomy. The photographs of the moon which he now obtained still remain works of art, which even the most skilful of recent astronomers find it difficult to emulate with success. He also made many attempts to photograph the solar disk; but owing to mechanical difficulties, connected with the necessarily infinitesimal duration of the exposure of the plates, his success was not great. He had hoped that, by treating the photographs stereoscopically, he might decide the true nature of sun-spots in respect of their being depressions or the reverse; but, although the evidence seemed greatly in favour of depression, the question can hardly be considered as photographically settled. His efforts in this direction ended in the construction of a small telescope for the Royal Society, with an object-glass of 3½ inches aperture properly corrected; and, with this photo-heliograph, numberless pictures of the sun were successfully taken at the Kew Observatory. This instrument has proved the parent of many others established in various parts of the world, so that at present scarcely a day passes without a record of the condition of the sun's disk. The arrangements for these observations of sun-spots are now constituted under the advice of the Solar Committee at South Kensington, and in due time no doubt important facts will be brought to light. All this is traceable to the little inconspicuous photograph deposited not far from the envelope machine in 1851; and in this way De la Rue became, and will ever be remembered as, the Father of Lunar and Solar Photography.

In 1860, De la Rue took this photo-heliograph with him on board the *Himalaya*, in connection with the memorable expedition to the Spanish Pyrenees, for the purpose of observing the total eclipse of the sun. He posted himself, with his whole battery of implements, at Riva Bellosa, in the valley of the Ebro, not far from Vittoria. He was successful in obtaining several photographs of the eclipse during its totality, which gave the promise of settling, once for all, the hitherto much-mooted question as to whether the red prominences belonged to the sun, or were attributable to a different origin. On his return home he devised a micrometer for the due measurement of these remarkable phenomena, and in conjunction with other photographs taken by Padre Secchi, at a station some 250 miles distant from Riva Bellosa, he succeeded in allocating these singular fiery prominences beyond question, in the gaseous envelope which surrounds the sun. The results of his researches were embodied in the Bakerian Lecture delivered before the Royal Society in 1862. Perhaps it is not too much to say that these efforts laid the foundation of that wonderful structure of solar physics which is daily enlarging our knowledge of the true nature of the sidereal universe.

In 1873 the Observatory at Cranford was dismantled, on the occasion of De la Rue's removal from his comparative seclusion there to his residence in London. The reflector, with all its numerous and valuable accessories, was presented to the University of Oxford, and by this noble gift it was enabled at length to establish an efficient Astronomical Observatory at a place of learning where Halley and Bradley had flourished and taught nearly two centuries before. The instrument was erected in completeness at De la Rue's sole expense, and for several years he defrayed the cost of the additional assistant necessary for its utilization.

Oxford has at no time been backward in acknowledging with gratitude all efficient services rendered in behalf of the studies of the place. Accordingly, on De la Rue was conferred the rare honour of the full degree of M.A., by which he became a member of Convocation, while New College also incorporated him among her Society of Wykehamists, and made him a member of their common room.

We have occasion to know that it was a source of gratification to De la Rue to feel assured that his generous gift was utilized to the full by his old friend the present Professor of Astronomy, and specially in the direction which himself had inaugurated. Moreover, when a few months ago he saw the marvellous results produced by Mr. Roberts in his photographic pictures of nebulæ, secured by a four hours' exposure, he gave directions for the additional mechanism requisite for the production, as he hoped and believed, of similar pictures by his own now ancient instrument. Such is the solidity of the original mounting, that at this moment it is finally placed on a par, in respect of accurate movement, with any known instrument; but he did not live long enough to watch the progress of the experiment. Nor does this end the catalogue of his gifts to the University. When he heard of the projected scheme inaugurated by Admiral Mouchez, the Director of the Paris Observatory, for completing a photographic chart of the entire sidereal heavens, he placed a considerable sum of money in the hands of the Vice-Chancellor in order to defray the cost of the large photographic telescope necessary for taking a part in this great enterprise. The University of Oxford is not an ephemeral institution, and De la Rue's acts of generosity will remain inscribed upon her annals.

While he was thus watching with intense interest the uses made at Oxford of the work of his renovated instrument, he was himself engaged in a new enterprise of his own. Whether the recollection of what his friend Gassiot had done some twelve years before at Clapham—how, when he returned from his City work in the early evening, he retreated down to his laboratory, furnished at incredible labour and expense, and there tried to investigate the nature and origin of the electric discharge, and especially the strangely beautiful luminous striæ observed in tubes partially exhausted, visited now and then, while at work, by Faraday and other kindred spirits—whether or not this may have been the inducing cause, certain it is that De la Rue became fascinated by the same phenomena, and enamoured with the same pursuit. Possibly through a like scientific contagion, Spottiswoode also, in due course of time, endeavoured to wrest the same secret from Nature's hands. For years these three men worked and persevered in hope. None of them wholly succeeded and yet none of them wholly failed; each and all left finger-posts to guide some future and more fortunate research.

The space which can be here afforded to the memoir even of an illustrious man precludes more than a passing allusion to the honours and social distinctions which always accompany the efforts of a life such as Warren de la Rue's; and upon him they were accumulated in abundance. The abiding honour lies in the contemplation of the man. A career like his dignifies the daily life of a manufacturer, giving it an aim and an object apart from the accumulation of wealth; it humanizes, warms, and illuminates the absorbing abstraction of the solitary student; and it illustrates the fact of an Aristocracy of Nature.

THE PHILOSOPHY OF MYSTICISM.

The Philosophy of Mysticism. By Carl du Prel, Dr. Phil. Translated from the German by C. C. Massey. 2 Vols. (London: George Redway, 1889.)

WE own to a certain mistrust when we are asked to accept goods under a trade-mark of mysticism; just as we have a most Levitical desire to pass by on the other side when we encounter the latest lucubrations of the circle-squarer, the absolute harmony of Genesis and geology, or when the last new theory of the soul is extended before us, "All Danaë to the stars." Now the philosophy of mysticism contains the latest of soul theories, or rather it is an old theory—a very old theory indeed—which has been newly adapted and furbished up and fitted with the very latest adjuncts which the outskirts of modern science can supply, so that it is to all intents and purposes just as good as if it were altogether new and original. Do not let us be misunderstood: both author and translator act in the strictest good faith. There is no false pretence about the matter. The whole work is perfectly ingenuous. The antiquity of the central idea is not in dispute, but it is claimed for the author that he has essentially modified our conception of that idea, that he presents his matter from a new stand-point, which is enough in all conscience nowadays, and that he is the first to show, by systematic analysis and comparison, that somnambulism and its cognate states are not essentially abnormal or morbid, but are in truth a mere exaltation of ordinary sleep, that the faculties evinced in those states are incipiently